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<u>AMENDMENTS TO THE CLAIMS</u>

<u>Listing of claims</u>:

Claim 1 (Canceled)
Claim 2 (Canceled)

3. (Currently amended): ~~A method as claimed in claim 1,~~ <u>A method, comprising:</u>

<u>executing an electronic hybridization assay on a first sequence and a reference</u> <u>sequence, the first sequence representing at least one or more subunits of a first molecule</u> <u>and the reference sequence representing at least one or more subunits of a second</u> <u>molecule;</u>

<u>providing an output representative of a hybridization reaction between the first</u> <u>and second molecules; and</u>

~~further comprising the step of~~ encoding the first sequence so that said executing step is optimized, wherein the first sequence includes at least one positive value and at least one negative value.

4. (Currently amended): A method as claimed in claim ~~1~~ <u>3</u>, said executing step including the step of performing a correlation algorithm on the first sequence and the reference sequence, the output of said providing step including a correlation output.

5. (Currently amended): A method as claimed in claim ~~1~~ <u>3</u>, further including the step of identifying a first molecule based upon the output of said providing step.

6. (Currently amended): A method as claimed in claim ~~1~~ <u>3</u>, further including the step of identifying a position of sequence similarity between the first molecule and the second molecule.

7. (Currently amended): An apparatus, comprising:

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means for executing an electronic hybridization assay on the a first sequence and a reference sequence, the first sequence representing at least one or more subunits of a first molecule and the reference sequence representing at least one or more subunits of a second molecule; and

means for providing an output representative of a hybridization reaction between the first and second molecules; and

means for encoding the first sequence so that execution by said executing means is optimized, wherein the first sequence includes at least one positive value and at least one negative value.

8. (Original):   An apparatus as claimed in claim 7, said executing means comprising an electronic hybridization machine.

9. (Original):   An apparatus as claimed in claim 7, said executing means comprising a computer appliance structure.

10. (Original):   An apparatus as claimed in claim 7, said executing means comprising a digital signal processor structure.

11. (Original):   An apparatus as claimed in claim 7, said executing means comprising a hardware correlator device structure.

12. (Original):   An apparatus as claimed in claim 7, further comprising means for encoding the first sequence so that execution by said executing means is optimized.

Claim 13 (Canceled)

14. (Original):   An apparatus as claimed in claim 7, said executing means including means for performing a correlation algorithm on the first sequence and the reference sequence, the output of said providing means including a correlation output.

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15. (Original): An apparatus as claimed in claim 7, further including means for identifying the first molecule based upon the output of said providing means.

16. (Original): An apparatus as claimed in claim 7, further including the means for identifying a position of sequence similarity between the first molecule and the second molecule.

17. (Currently amended): A machine readable medium having a program of instructions stored thereon, the program of instructions for causing a machine to implement steps for executing an electronic hybridization assay according to the program of instructions, the steps comprising:

executing an electronic hybridization assay on a first sequence and a reference sequence, the first sequence representing at least one or more subunits of a first molecule and the reference sequence representing at least one or more subunits of a second molecule; and

providing an output representative of a hybridization reaction between the first and second molecules; and

encoding the first sequence so that said executing step is optimized, wherein the first sequence includes at least one positive value and at least one negative value.

18. (Original): A machine readable medium as claimed in claim 17, further comprising the step of encoding the first sequence so that said executing step is optimized.

Claim 19 (Canceled)

20. (Original): A machine readable medium as claimed in claim 17, the executing step including the step of performing a correlation algorithm on the first sequence and the reference sequence, the output of said providing step including a correlation output.

Claims 21-30 (Canceled)

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